Urban Population and Identification of Indicators for Affordable Housing in India

Umesh Chandra Mishra, Satyaki Sarkar

Abstract— Urbanization assumes a pivotal role in the economic development of any country. Housing affordability has been broadly perceived as a fundamental issue in making practical assembled condition particularly with regards to developing world urban communities. As a result, a large number of the least urbanized and least developed Indian nations' will confront serious difficulties in giving moderate housing to the urban tenants. This exploration is done to distinguish conceivable indicators for affordable housing in India, particularly in the urban zones. Likewise, it inspects the present view of housing affordability in outlying regions through the improvement of a set of empirical indicators. These indicators are applied to give an incorporated affordability record for each statistical area unit across India.

Index terms: India,Urban population, Housing affordability, Cost breakup and Housing indicators

I. INTRODUCTION

The Globalization has prompted the rapid development on the planet economy and development of the general population, product, capital and so on in a quicker and simpler way [1]. Also, due to Globalization, the one idea which comes into full swing is the urbanization[2]. The urbanization has an idea is an essential concept for the procedure of improvement [3]. India is a quickly urbanizing nation confronting advancement challenges related with fast development. One of the difficulties for a creating nation like India is urban migration[4], which is additionally exacerbated by restricted assets to meet increasing housing demands [5]. The high level of work migration from country territories to urban areas has added to urban clog, pressure on essential courtesies, for example, water and sanitation, and so forth., and a large portion of all, housing shortages in urban areas over India . Housing has been portrayed extensively as "inside and outside space" and particularly with respect to most living life forms, in which the living being develops and repeats [7]. This would prompt a shortage of 25 Million housing units – 99% of it being in the Economically Weaker Sections (EWS) and the Low Income Group (LIG) space [8]. Housing affordability is one of the key factors that can portray the socioeconomic stability along with advancement of a nation [9]. Housing affordability is planned to guarantee the housing gave is reasonable by each income worker group whether low-income, middle income,andhigh-income group [10].

Further, the nation's aggregate urban housing shortage is anticipated to be around 30 million by 2022 [11]. This regularly increasing gap between demand as well as supply in the moderate housing portion is driving individuals to live in slums and casual settlements [12]. It is clear that the issue, if not managed successfully, can have ahuge negative effect on the nation's financial development and destitution diminishment endeavors [13]. Despite the fact that the urban housing shortage is essentially determined by EWS and LIG fragments in India, most of the limit expansion has been going ahead in the sections past the compass of EWS and LIG customers [14]. Land designers and private players are concentrating essentially on Medium Income Group (MIG) and High Income Group (HIG) portions attributable to the higher comes back from these activities [15]. Then again high land costs, delay in project approvals, expanding crude material expenses and low net revenues have made low-cost housing ventures less alluring to the private engineers [16]. Additionally, housing (counting Affordable Housing) being a state subject makes complexities in usage as a result of dubious money related state of advancement specialists, state/city-level organizations and their constrained limits in dealing with in these ventures [17].

II. OVERVIEW

The land is utilized for different exercises like agriculture, foundation improvement and different types of construction (Housing, Commercial, Institutional and Industrial and so on.). Among these, Housing is anessential requirement for person [18]. This developing convergence of individuals in urban regions has prompted issues of land shortage, housing deficiency, and different issues as well. Because of the soaring costs of land and land in urban territories poor, economically weaker sections of society cannot afford proper housing units. Subsequently the present Indian situation displays a test for housing for different client groups [19]. With shortage of land in urban regions, the inquiry emerges in the matter of what ought to be the colloquialism of moderate housing in India. In addition, to react to the need of housing request, the inquiry emerges what ought to be the markers of housing request in India [20]. To influence our Literature to survey significant we should confine a few limits with some moment and precise details. The main objective of this paper is to recognize the indicators for affordable housing in India.

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III. URBANIZATION

In the year 1950, just around 30% of the total populace lived in urban regions, which were expanded to above in 2012. It was evaluated that by the year 2030 over 70% of world individuals will be lived in urban territories. The term 'urbanization' implies the expanding offer of a country's populace living in urban zones. A country's urban populace can develop from natural increase, net rural to urban migration and renaming.

According to 2001 census, the urban populace of the nation was 286.11 million, living in 5161 towns, which constitutes 27.81% of the aggregate nation's populace. Notwithstanding, the same according to 2011 evaluation has ascended to 377.16 million viz. 32.16% of the total nation's populace and in the meantime number of towns has gone up to 7935. The rate of urban development in the nation is high when contrasted with developed nations, and the huge urban areas are getting to be noticeably bigger generally because of consistent migration of populace to these urban areas. India's present urban populace surpasses the entire populace of the United States, the world's third-biggest nation. By 2050, over aportion of India's populace is required to be urban dwellers.

3.1 Challenges in Urbanization

- Rapid urbanization has caused across the board ecological corruption in the nation. India has suffered to provide urban dwellers essential need like housing.
- In 2012, the Ministry of Housing and Urban Poverty Alleviation (MHUPA) expressed that there is an undersupply of 18.78 million housing units in urban India, of which about 95% influences the EWS and LIG of the urban populace.
- People who have a place with the EWS and LIG sections have no entrance to formal housing money. A few of them win day to day compensation and live in slums.
- The 2011 statistics listed that about 65.5 million individuals dwell in slums in Indian urban communities.

3.1.1 Responsible Factors for Urbanization

Since in our nation, urbanization is unexpected because of uncontrolled migration. Because of unexpected urbanization, India is confronting excessively issue, for example, housing and unemployment, power issue and contamination, social issues, uncalled for sanitation offices and so on. Among that, housing arrangement for the developing urban populace will be the greatest test before the legislature. The developing expense of houses correlation with the income of the urban middle class has made it impossible for larger part of lower income groups and is dwelling in congested settlement and huge numbers of those are without legitimate ventilation, lighting, water supply, sewage framework, and so on.

3.2 Urbanization and Housing shortage across countries

The United Nations world housing overview of 1974 uncovers the overall public development has extensively been since 1950 and that the proportion of urban populace to the total populace is always increasing. In the vicinity of 1970 and the year 2000, the urban populace of the developing locales is required to increase by three and it will represent 60% of the total populace.

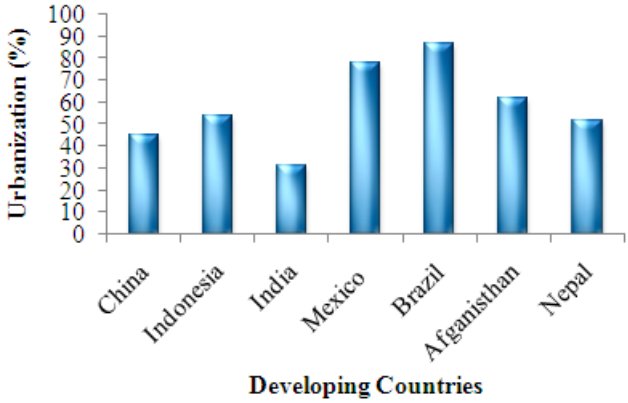

Fig 1: Urbanization rate of developing countries

Figure 1 represents the graphical representation of the urbanization rate in developing countries along with India. Compared to other countries, India has least urbanization rate in terms of housing across the developing countries. India's urbanization rate was last recorded at 31% which is much lower than Mexico, Indonesia, Brazil, China, Nepal,and Afghanistan. In the research work, anurbanization rate of India is analyzed and governments at each level coordinate and collaborate through the new institutional arrangements that have evolved in the planning and delivery of affordable houses.

3.3 Urbanization in India

Presently, urban India is home to 377 million individuals. Urban India is relied upon to house 600 million individuals by 2031, an expansion of approximately 59% from 2011. India's urban housing shortage is around 19 million according to the research estimation. In India, the slum populace in 2011 was 66 million, anticipated to be 105 million by 2017.

In India, the urbanization growth is usually in two ways, i.e.

- increase in the urban population
- migration of people

Increase in the urban population, which will be natural and the other is amigration of people from rural to urban areas in addition to this, from small cities to big metros.

Table 1: Ratio of urbanization in India for the year 2001 and 2011

Year of census	Total Population (in millions)	Rural Population (in millions)	Urban Population (in millions)
2001	1028.7	742.6	286.1
2011	1210.6	833.5	377.1

Table 1 depicts the populace rate of India for the year 2001 and 2011 census. From the analysis, the rate of theurban populace is expands contrasted with a decade ago census. In 1951, there are five urban areas having apopulace of more than one million, which increment to 53 urban communities in the year 2011. In future, it will be 70 urban communities in the nation by 2031, with million populace. Best practices like

100% closed drainages, drinking water, power,andhousing are not in any case accomplished in India. India is still behind regarding essential urban administrations.

3.3.1 Housing Shortages in India

India's 99% urban housing shortage is as a rule fundamentally determined by the Economically Weaker Section (EWS) and the Low Income Housing (LIH) classifications. The aggregate housing shortage toward the finish of thetenth arrangement has formally been surveyed as 24.71 million abiding units for 67.4 million Households, where 98% of this shortage was in the Low Income and Economically Weaker Sections (EWS) fragment. The circumstance even toward the finish of eleventh Plan, regardless of endeavors visualized to be actualized, is additionally not anticipated to enhance, yet rather this shortage is expected to rise to 26.53 million houses for 75.01 million family units.

3.3.2 Urbanization and Housing shortage in India

India has a populace of 1210.98 million, out of which 378.10 million (32.16%) lived in urban territories as indicated by 2011 census. During 2001-2011 periods, the level of urbanization in India was from 27.81% to 31.16%. This developing centralization of individuals in urban territories has prompted issues of land shortage, housing shortfall,and different issues as well. Because of the soaring costs of land and land in urban territories, poor, economically weaker areas of society can't afford proper housing units. The urbanization rate of 6 Indian states is portrayed in figure 2.

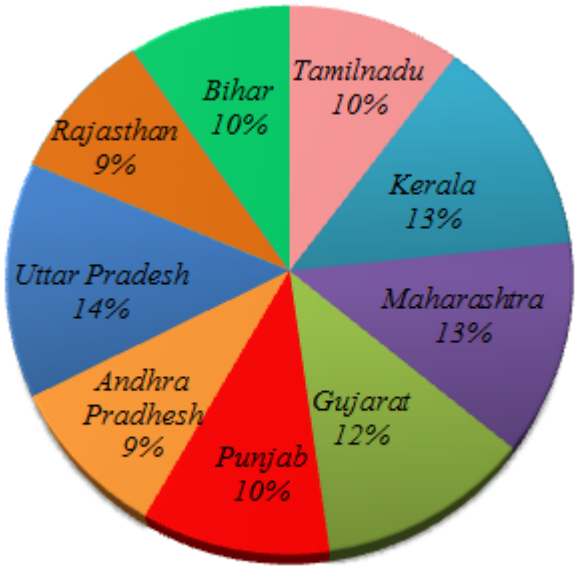

Fig 2: Urbanization rate of Indian States

3.3.3 Urbanization, Housing shortage and its impact on shelter for the poor

In numerous urban areas of developing nations, up to half of the urban populace lives in slums in addition to squatter settlements. As indicated by a United Nations report, populace in slums and uncontrolled settlements as a level of city populace changed from 27 to 34 % in African nations, 70 to 80 % in America, 15 to 44 percent in Asia and the Pacific, and 22 to 65 % in Europe. Low-cost housing can be viewed as reasonable for low-and direct income workers household can get a housing unit for a sum up to 30 percent of its family income.

In developing nations, for example, India, just 20% of the populace is high-income workers, who are able to afford ordinary housing units. The LIG in creating nations is for the most part unfit to get the housing market. The gauge of thehousing shortage in urban zones has been reconsidered downwards to around 10 million units from 2011 projection of 18.76 million, Housing and Urban Affairs Minister today said and guaranteed to give homes to all by 2022 through its different plans. The plan is intended to guarantee that by 2022 each Indian possesses a private unit, the minister said.

IV. AFFORDABLE HOUSING

An affordable house can be characterized as a house that a family group can get inside a given period, which usually from 15 to 30 years. This period is specifically associated with the acquisition limit of the group and the money related help that they can obtain in terms of loans, credits and endowments. Since an affordable house is such a long-term investment, it ought to give increased the value of its proprietors in terms of comfort, quality and life expectancy.

There is no obvious meaning of the term 'Reasonable', as it is a relative idea and could have several implied meaning in various settings. As per the RICS report, affordability with regards to urban housing implies arrangement of, asatisfactory haven on supported premise guaranteeing thesecurity of residency. Affordable housing is that, given to those whose requirements are not met by the open market. The General Assembly of the United Nations, consequently, chose to dispatch the worldwide methodology for shelter in the year 2000. The principle objective is to encourage the arrangement of sanctuary for all by the year 2000. "Shelter for all" implies affordable shelter for all groups in a wide range of settlements, meeting fundamental necessities of residency security, basic steadiness, and infrastructure support, with advantageous access to business and group administrations and offices.

4.1 Definition of Affordable Housing

Plan	Minimum volume of Habitation	Provision of basic Amenities	Cost of House	Location of the House
EWS	Minimum of 269 sq.ft Carpet area. Minimum of 2250 cu. ft. internal volume.	• Sanitation, adequate water supply,and power • Provision of community spaces and amenities such as parks, schools, health care facilities either within the project or in theneighborhood.	• Cost of thehouse such that EMI<**30-40%** of thegross monthly income of a buyer. • Reasonable maintenance cost	• Located within 20 km of a major work place • Should be well connected to major public transit hubs.
LIG	300-600 sq.ft Carpet area. 2700-5400 cu. ft. internal volume.			
MIG	600–1,200 sq ft carpet area 5,400–10,800 cu ft internal volume			

4.1.1 Need for Affordable Housing

• This increment in the worldwide urban populace will definitely bring about a sharp increment in the interest for housing.

• When examining worldwide advancement situations, the building part is clearly of high social along with economic significance in developing as well as the least-developed nations.

• The tendency towards urbanization in these nations is very much reported, and it is normal that 70% of the total populace will live in urban areas by 2050.

• This slant is principally determined by the view of urban communities as focuses of riches and flourishing that attract people from rural territories looking for better prospects.

4.2 Some of the challenges in Affordable Housing

The initial phase of the advances evaluation process was to recognize, which are the fundamental difficulties for the execution of such activities. The proposed challenges don't claim to demonstrate the entire assortment of troubles that can happen while giving recently developed affordable houses however to highlight the most generally happening. The recognized difficulties were utilized to arrange a grid that relates the primary difficulties with the proposed indicators. A portion of the difficulties isscarcity of resources, theabsence of adequate supports, and time shortage because of theurgency of interest, shortage of skilled labour, quality control and wastage because of inefficiency.

4.3 Benefits of Affordable Housing

Economic Benefits: Affordable housing gives guide financial preferences to the prompt group. Since the houses are affordable, individuals will have additional cash to spend. This will prompt an expansion in the request of different administrations and products prompting increased employment openings.

Chance for employment: For example, development laborers, transport drivers, cleaners, shop partners, instructors and medical attendants are all around catered under affordable housing and hence they can give their essential administrations to the group.

4.4 Review Analysis

This part explains about the different research papers based on urbanization and affordable housing across various countries.

Reference Paper	Area of the Study	Identified Indicators for Affordable Housing	Drawback
[21]	Auckland	Expenditure of annual income for shelter, Household income and Loan repayment capacity as indicators	provide only the financial burden of housing
[22]	Akure, Nigeria	Housing Cost, work destination and commute distance housing vacancy and foreclosure rates as indicators	for disabled persons, aged people, single mothers and the very poor people who could not meet their own housing need
[23]	San Diego-Tijuana	Number of buildings permits issued, Total and per capita water consumption as indicators	straight-forward CIP be more attractive than a CIP with complex Indicators
[24]	Nigeria	Housing cost and Rental amount as indicators	Insufficient distribution of housing units
[25]	Malaysia	income rate, housing stock, population growth and gross domestic products	the government needs to take necessary steps to increasing number low-cost housing
[26]	Mumbai	Identify potential areas	It provides evidence of sensitive areas only
[27]	Mumbai	provides a case study of the growth, persistence, and governance of slums in Mumbai	the issue for policymakers is how to deal with the informal settlements
[28]	Vietnam	indicators to measure social housing quality	includes 12 indicators and 55 specific component factors

4.5 Indicators for Different Dimensions of Research on Affordable Housing and Its Applicability

It is up to date model to satisfy the housing prerequisite for higher, medium, low pay and defenseless gathering of society, particularly in India and other creating nations. For estimating affordable housing, indicators are exposed basic. Without indicators, estimation of reasonable housing isn't conceivable. After that, the investigation of different Journal's and Research Papers, following indicators have been distinguished.

Based on these chosen indicators, combine these Questionnaires will be shaped, to gather the information in various resettlement provinces of study zone. It has been endeavored to combine all these distinguished indicators in Questionnaire. Consequently based on this recorded Questionnaire by residents in various resettlement colonies next process in inquire about work will be finished. With the present circumstance of India, we propose the four after real quality indicators, each of which contains a few segment factors. The four indicators for reasonable housing are

- Financial Indicator
- Social Indicator
- Land-related Indicator
- Sustainability Indicators

Financial Indicators

Affordable Housing Development as a level of GDP, Household Income,

Household Stock and income classes, Market benefit of staying, Inflation Rate (Building materials,

Land cost), Percentage Expenditure of yearly pay for shelter, Housing Prices (Sales Figure and Public Perception), Rental Amount, Loan reimbursement limit, Work goal and commute distance, Transport consumption for work, Housing opportunity and abandonment rates. The rate of these indicators is uncovered in figure 3.

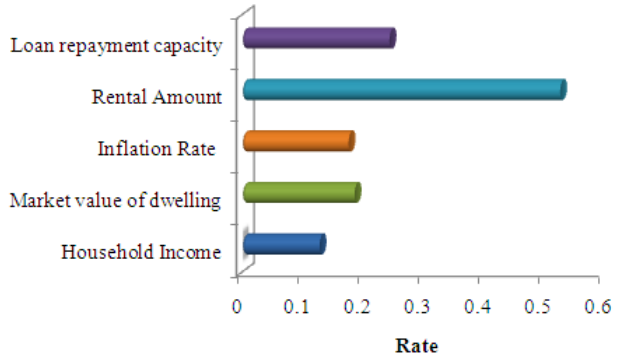

Fig 3: Financial Indicators

Social Indicators

Populace Density, Population Growth, Percentage of Unemployment, Household Density in staying units, Density of individuals in rooms, Average number of spaces for every household, Residents fulfillment level of housing.

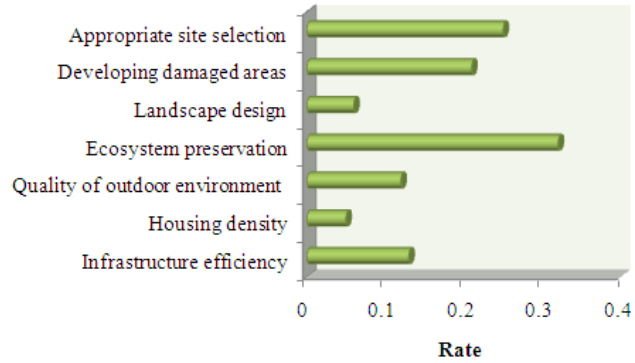

Fig 4: SocialIndicators

Land Related Indicators

Dwelling Size, Room Sizes, Housing supply and demand

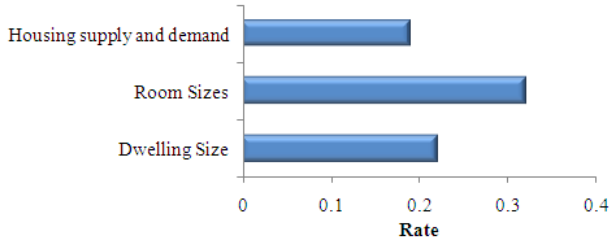

Fig 5: Land RelatedIndicators

Sustainability Indicators

Energy effectiveness related indicators, Water productivity related indicators, Durability related indicators, Total and per capita water utilization.

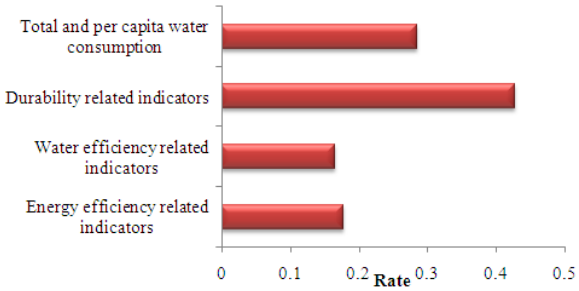

Fig 6: Sustainability Indicators

Low-cost housing projects are described by an expanding request for the most part because of urbanization. The selection of building materials should address the requirements of close by conditions to enhance personal satisfaction for the most required ones by building new structures as well as by enhancing existing structures. Based on the recognized indicators of the urban individuals, affordable housing is given.

4.5.1 Housing costs and metrics of housing affordability

Traditional housing affordability measures: The essential communal attribute housing reasonableness indicators is that they endeavor to quantify the financial weight of housing, regularly over some zone of geographic space. The idea of 'housing reasonableness' is itself profoundly polysemous, having various definitions and methodological approaches utilized as a part of its estimation.

To lessen the cost of housing development, along these lines, all the above parts of housing construction ought to be considered to impact economies that are conceivable and practical. Concentrated innovative work is required to be kept on decreasing the cost of construction through the accompanying:

(i) Optimum use of land
(ii) Efficient planning of spaces
(iii) Rational structural design
(iv) Economical use of materials
(v) Appropriate construction techniques
(vi) Proper organization and management of construction
(vii) Increased labor productivity
(viii) Fast pace of construction
(ix) Minimal wastage of materials
(x) Faster decision making

4.5.2 Cost of Housing Breakup

The four major components contributing to the cost of housing construction generally comprise the following:

- Planning, organization, and administration represent 20 percent of the cost of development.
- Land development is estimated to be 29 percent of the cost.
- Building materials, wages of labor utilized for development, and instruments and hardware represent up to 40 percent of the cost.

• Building construction works (not the cost of labor required for development) represent 20 percent of the cost.

V. ANALYSIS AND DESCRIPTION RESULTS

This section explains the results of analyzed research papers and to identify the indicators for affordable housing in India. Research papers related to urbanization rate as well as housing shortages in India are analyzed. In addition to this, housing demand, housing supply,and housing deficit are analyzed based on the indicators.

5.1 Material Analysis of Affordable Housing

The utilization of sustainable building materials is critical for the incremental procedures of self-guided house development and home change. Low-incomes family units should always have the capacity to purchase good quality and affordable building materials. Whenever family units and groups are taken an interest in-house development, they can fundamentally lower the building costs. The materials utilized as a part of low-cost housing are depicted as below:

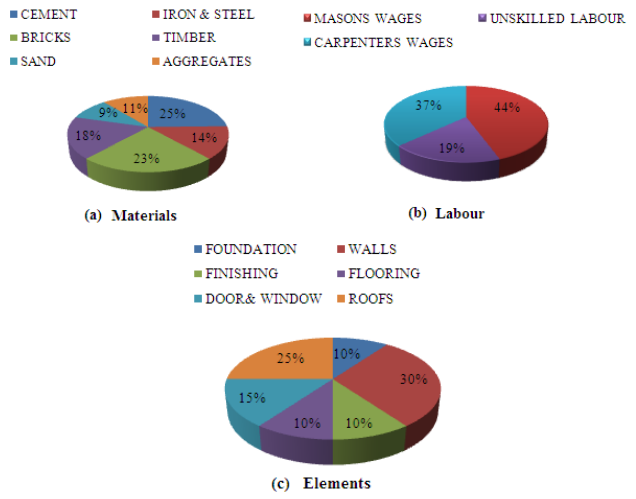

Fig 7: Cost breakup of (a) Material, (b) labors and (c) elements in Affordable Housing

5.2 Average Analysis of Housing Indicators

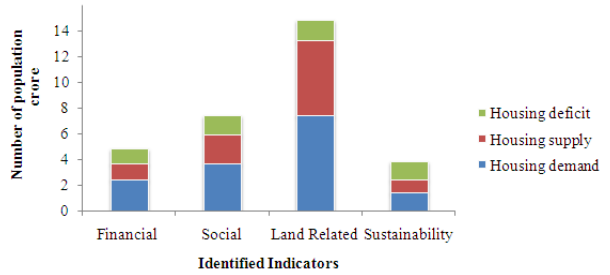

Fig 8: Average Analysis of Housing Indicators

The indicators for affordable housing across India is analyzed and depicted in figure 8. Nearly, 2,410,096 people need housing among that 1,226,360 people satisfied with the affordable housing scheme under the financially related indicator for affordable housing. Similarly, the social, land and sustainability-related housing demand, satisfied housing supply and its deficit are analyzed with the help of the existing literature. Among the four indicators, land-related indicator is avery promising issue among the urban people.

VI. CONCLUSION

The developing issue of urbanization in India over the last two decades has brought into focus the requirement for housing scientists. The paper reviewed the issue of affordable housing along with the cost separation of housing materials in India. Likewise, it found that a noteworthy extent of householders in the city is facing housing affordability problem especially with reference to nature of housing, for example, financial, social, land related and sustainability. Based on the housing indicators, the investigation proposed that organizations should be set up by the state government to provide affordable housing to the urban individuals in India. It is assured that the research will help in the development of housing policy for the country in the future.

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